

Claims

1. Sample depositing device, particularly for a cell sorter, with

5 - a sample supply (38, 39) for supplying samples to be deposited,

- a sample storage element (36) for storing the samples, whereby the sample storage element (36) has several sample containers for the separate storage of the samples,

characterized in that

10 the sample storage element (36) is arranged in a displaceable manner in order to select a sample container, whereas the sample supply (38, 39) is stationary.

2. Sample depositing device according to claim 1,

15 **characterized in that** the sample supply (38, 39) has a hose (38) the mouth of which is fixed in a stationary manner over the sample storage element (36).

3. Sample depositing device according to claim 2,

20 **characterized in that** the hose (38) is led through a guiding piece (39) in order to direct the mouth of the hose (38) to the sample storage element (36).

4. Sample depositing device according to claim 3,

25 **characterized in that** the guiding piece (39) has a groove into which the hose (38) can be inserted in order to define the course of the hose and to direct the mouth of the hose (38) to the sample storage element (36).

5. Sample depositing device according to claim 3 or 4,
characterized in that the guiding piece (39) consists of
an autoclavable and/or sterilisable material.
6. Sample depositing device according to claims 3 to 5,
5 **characterized in that** the guiding piece (39) is made of
PEEK, LEXAN or TEFLON.
7. Sample depositing device according to any one of claims 2
to 6 **characterized in that** the hose (38) and/or the
guiding piece (39) is fixed in a detachable manner above
10 the sample storage element (36).
8. Sample depositing device according to claim 7,
15 **characterized in that** the hose (38) and/or the guiding
piece (39) is attached in a detachable manner above the
sample storage element (36) by way of a holding magnet
(40).
9. Sample depositing device according to claim 8,
characterized in that the holding magnet (40) is fixed in
a stationary manner to the sample depositing device,
whereas a magnetizable holding element is attached to the
20 guiding piece (39).
10. Sample depositing device according to claim 9,
characterized in that the magnetizable holding element is
cast into the guiding piece (39) or the guiding piece (39)
is injection molded around it.
- 25 11. Sample depositing device according to any one of the
preceding claims, **characterized in that** to position the

sample storage element (36) relative to the sample supply (38, 39) a actuator (42-44) is envisaged.

12. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) can be positioned laterally and in the direction of the sample supply (38, 39).
13. Sample depositing device according to claim 12, **characterized in that** the sample storage element (36) can be positioned so far in the direction of the sample supply (38, 39) that the sample supply (38) is immersed in one of the sample containers of the sample storage element.
14. Sample depositing device according to claim 12, **characterized in that** the sample to be deposited is fluid and has a material-dependent droplet detachment size, whereby the sample storage element (36) can be moved so far upwards in the direction of the sample supply (38) that the distance between the sample supply (38) and the sample storage element (36) is smaller than the droplet detachment size.
15. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) is arranged in an incubator (37).
16. Sample depositing device according to claim 15, **characterized in that** the incubator (37) has an inspection window and/or a camera and/or additional lighting in order to allow visual monitoring.

17. Sample depositing device according to claim 15 or 16, **characterized in that** the incubator (37) has a climate control equipment which sets the temperature and/or the humidity and/or the carbon dioxide content in the incubator (37).
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18. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) is a microtiter plate or has test strips for taking up PCR samples.
- 10 19. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) is arranged in a detachable manner in the sample depositing device.
20. Sample depositing device according to claim 19, **characterized in that** the sample storage element (36) can be inserted and/or removed manually or with a robot.
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21. Sample depositing device according to any one of the preceding claims, **characterized in that** to guide the sample storage element (36) laterally arranged metal balls or sprung spherical pressure elements are provided.
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22. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) has a cover which can be opened for storing the samples and can be closed for removal and/or transportation of the sample storage element (36).
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23. Sample depositing device according to any one of the preceding claims, **characterized in that** the hose (38) is

connected to the guiding piece (39) in a detachable manner.

24. Sample depositing device according to any one of the preceding claims, **characterized in that** the hose (38) is 5 permanently attached to the guiding piece (39).

25. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample supply (38, 39) is arranged above the sample storage element (36), whereby the distance between the sample supply (38, 10 39) and the sample storage element (36) is smaller than a material-dependent droplet detachment size in order to prevent droplet detachment during the storing of the samples.

26. Sample depositing device according to any one of the preceding claims **characterized in that** to store samples 15 which are not of interest a collection container (46) is provided.

27. Sample depositing device according to claim 26, 20 **characterized in that** the collection container (46) has a cover which can be opened.

28. Sample depositing device according to claim 26 or 27, **characterized in that** the collection container (46) is removable.

29. Sample depositing device according to any one of claims 26 25 to 28, **characterized in that** the collection container (46) is made of an autoclavable material.

30. Sample depositing device according to any one of claims 26 to 29, **characterized in that** the collection container (46) has on its upper side at least one trough-shaped recess (47, 48) for dabbing off a sample.

5 31 Sample depositing device according to any one of claims 2 to 30, **characterized in that** the hose (38) has an oblique tip.

10 32. Sample depositing device according to any one of claims 2 to 31, **characterized in that** the hose (38) is at least in the area of its mouth made of a hydrophilic material or is at least coated with a hydrophilic material in the area of its mouth in order to prevent droplet detachment.

15 33. Sample depositing device according to any one of the preceding claims, **characterized in that** the sample storage element (36) is covered with a film which can be penetrated by the sample supply (38).

34. Cell sorter with a sample depositing device in accordance with any one of the preceding claims.

20 35. Particle manipulator with a sample depositing device according to any one of claims 1 to 33, in particular manipulator for the fusion and/or poration of biological objects.

25 36. Fluidic system with sample depositing device according to any one of claims 1 to 33, in particular system for mixing fluids.

37. Sample depositing process, particularly for depositing samples in a cell sorter, with the following stages:

- Positioning of a sample supply (38) relative to a sample storage element (36),
- Release of the sample to be deposited from the sample supply (38) in the sample storage element (36),

5 **characterized in that**

the sample supply (38) is stationary whereas the sample storage element (36) is moved.

38. Sample depositing process according to claim 37,

characterized in that the sample is fluid and has a material-dependent droplet detachment size, whereby for depositing the sample the sample storage element (36) is moved so far in the direction of the sample supply (38) that the distance between the sample supply (38) and the sample storage element (36) is smaller than the droplet detachment size.

10 39. Sample depositing process according to claim 38,

characterized in that when releasing the sample a distance remains between the sample supply (38) and the sample storage element (36).

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